National Regional Sediment Management

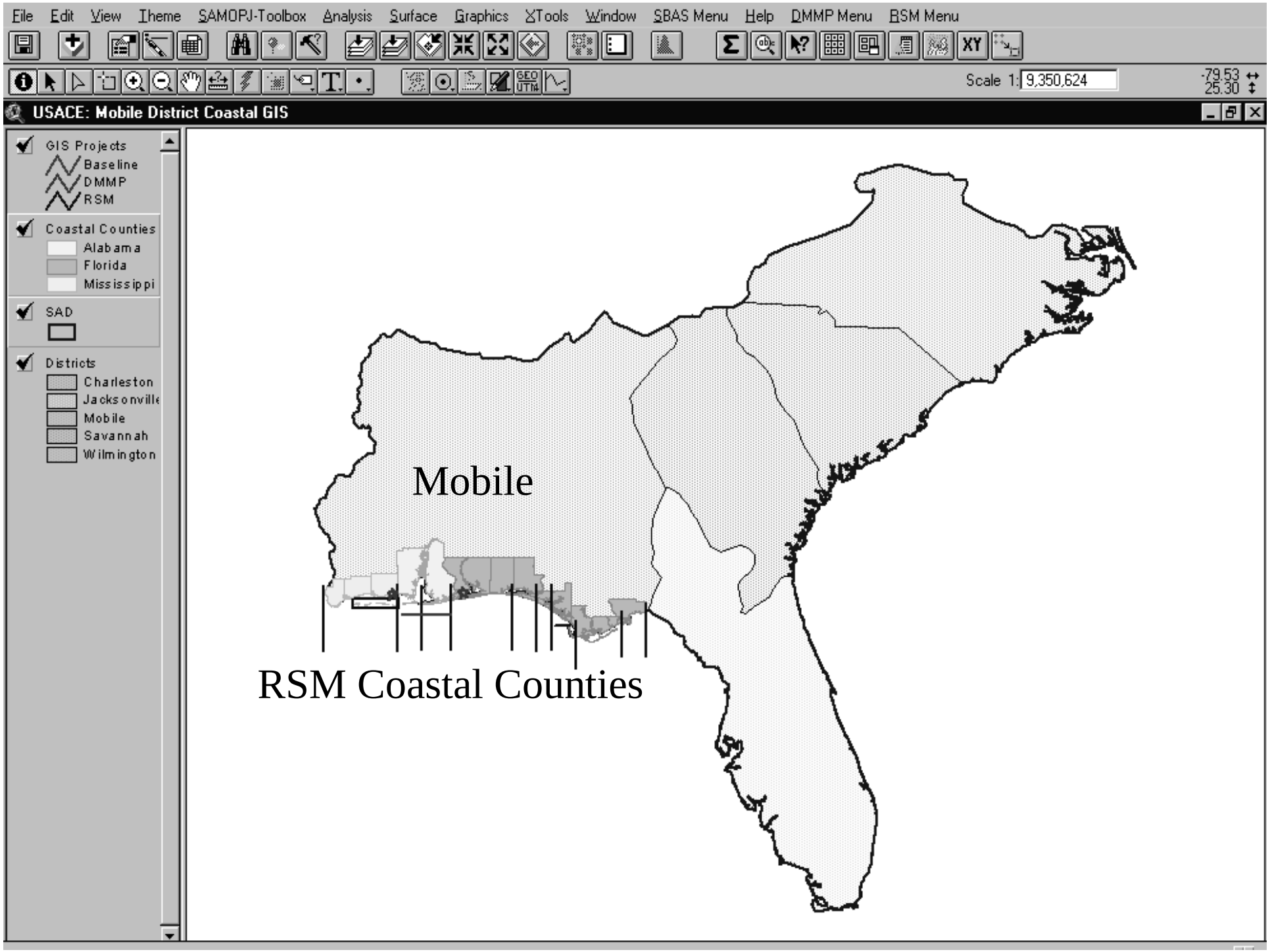
An Enterprise Coastal GIS

Lynn Copeland Hardegree, Engineering Division

US Army Corps
of Engineers
Mobile District

Regional Sediment Management

- Regional Sediment Management (RSM) refers to the effective utilization of littoral, estuarine, and riverine sediment resources in an environ-mentally effective and economical manner.


File Edit View Theme SAMOPJ-Toolbox Analysis Surface Graphics XTools Window SBAS Menu Help DMMP Menu RSM Menu
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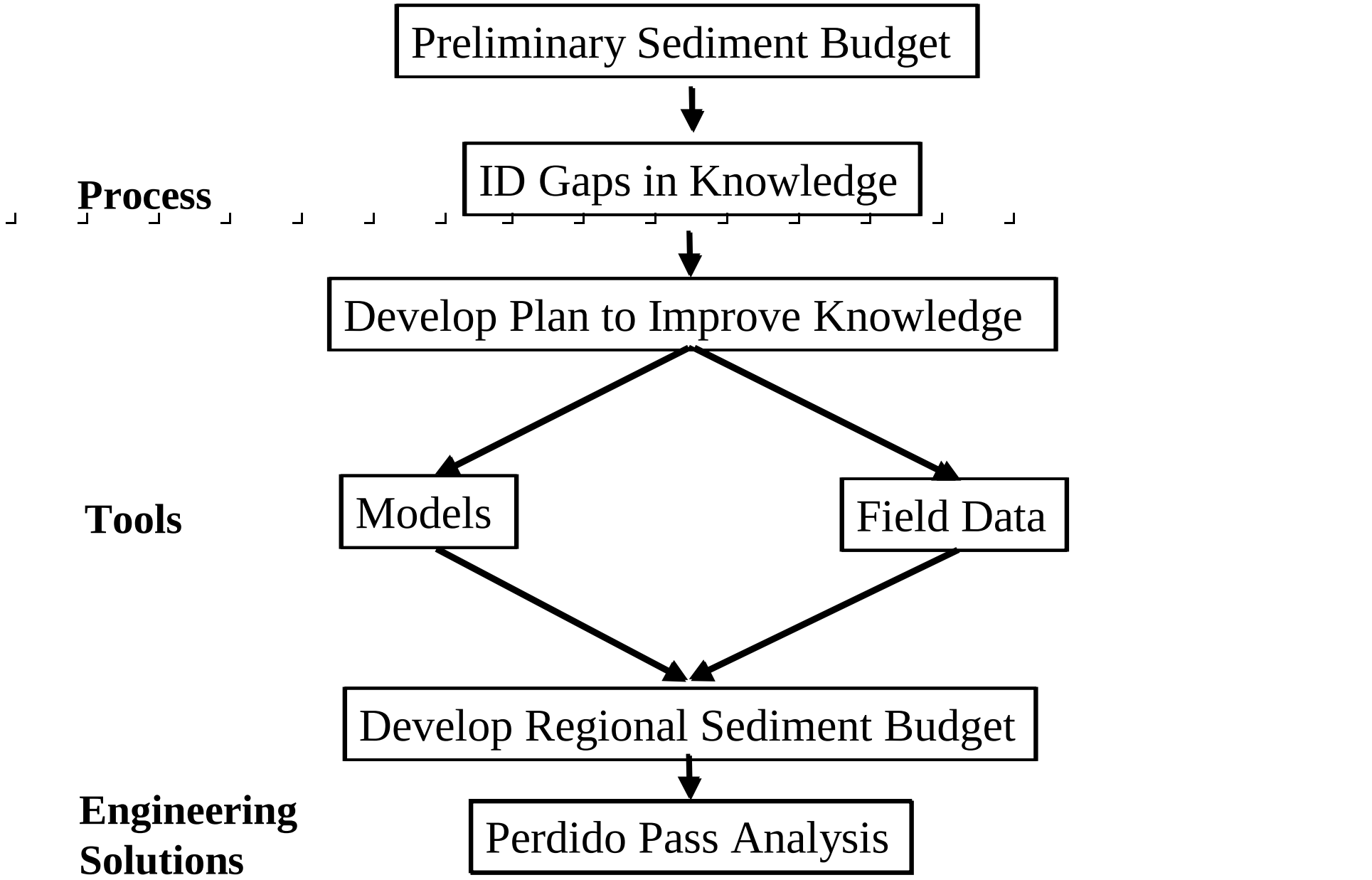
-79.53
25.30
USACE: Mobile District Coastal GIS
GIS Projects
Baseline
DMMP
RSM
Coastal Counties
Alabama
Florida
Mississippi
SAD
Districts
Charleston
Jacksonville
Mobile
Savannah
Wilmington
Mobile
RSM Coastal Counties

CESAM's RSM GIS

- Provides RSM scientists and engineers an interface to hydrographic, topographic, photogrammetric, and historic dredge material data for the RSM region, as well as custom applications designed to facilitate engineering analyses.

Why use a GIS?

- Develop a sediment budget for the region
- Facilitate the sharing of data
- Institutional knowledge


Preliminary Sediment Budget
Process
ID Gaps in Knowledge
Develop Plan to Improve Knowledge
Tools
Models
Field Data
Develop Regional Sediment Budget
Engineering Solutions
Perdido Pass Analysis

Regional Sediment Management GIS

Data Management

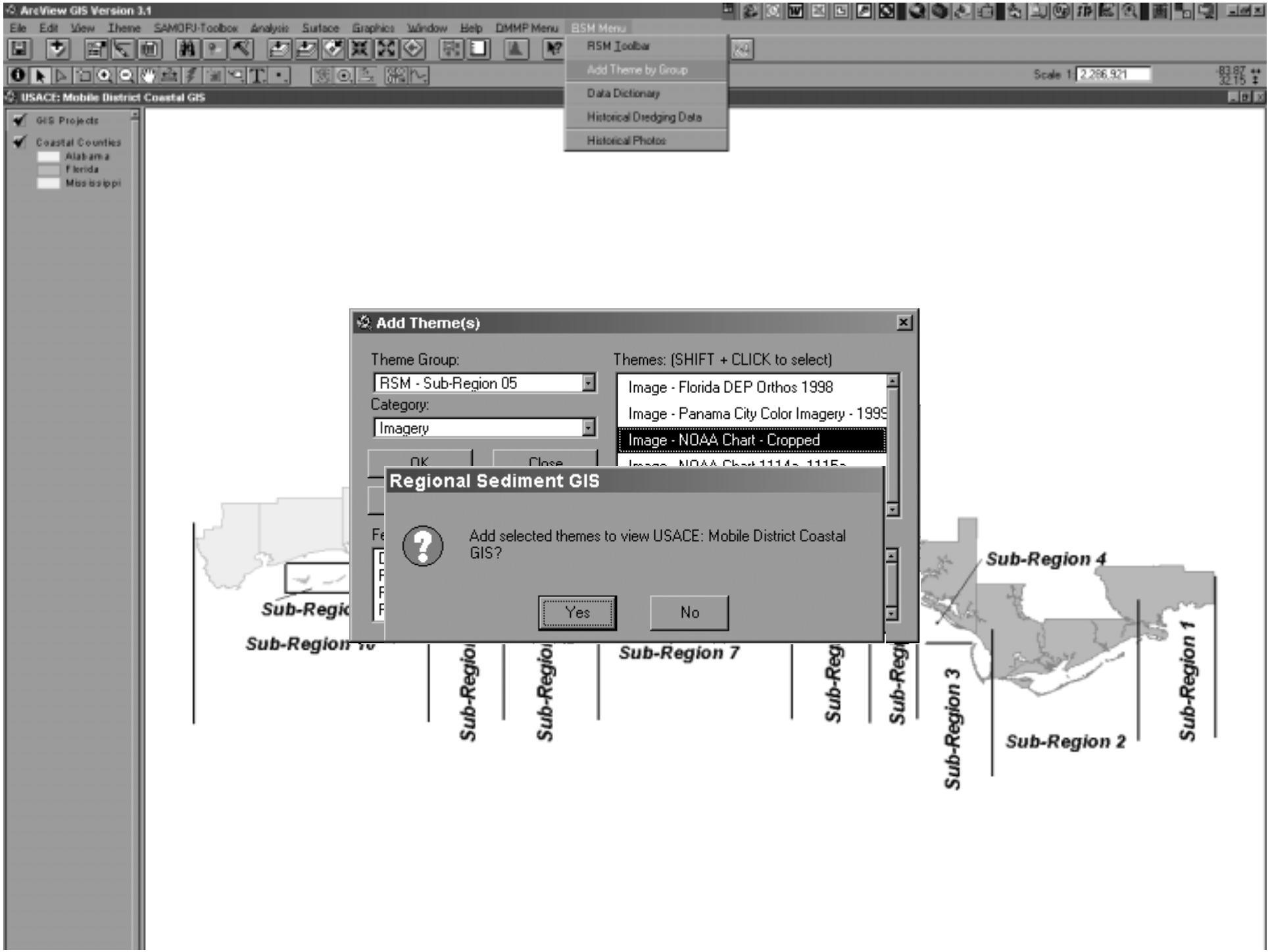
- Geospatial
- Reports
- Historic Information
- Model Results
- Time Series

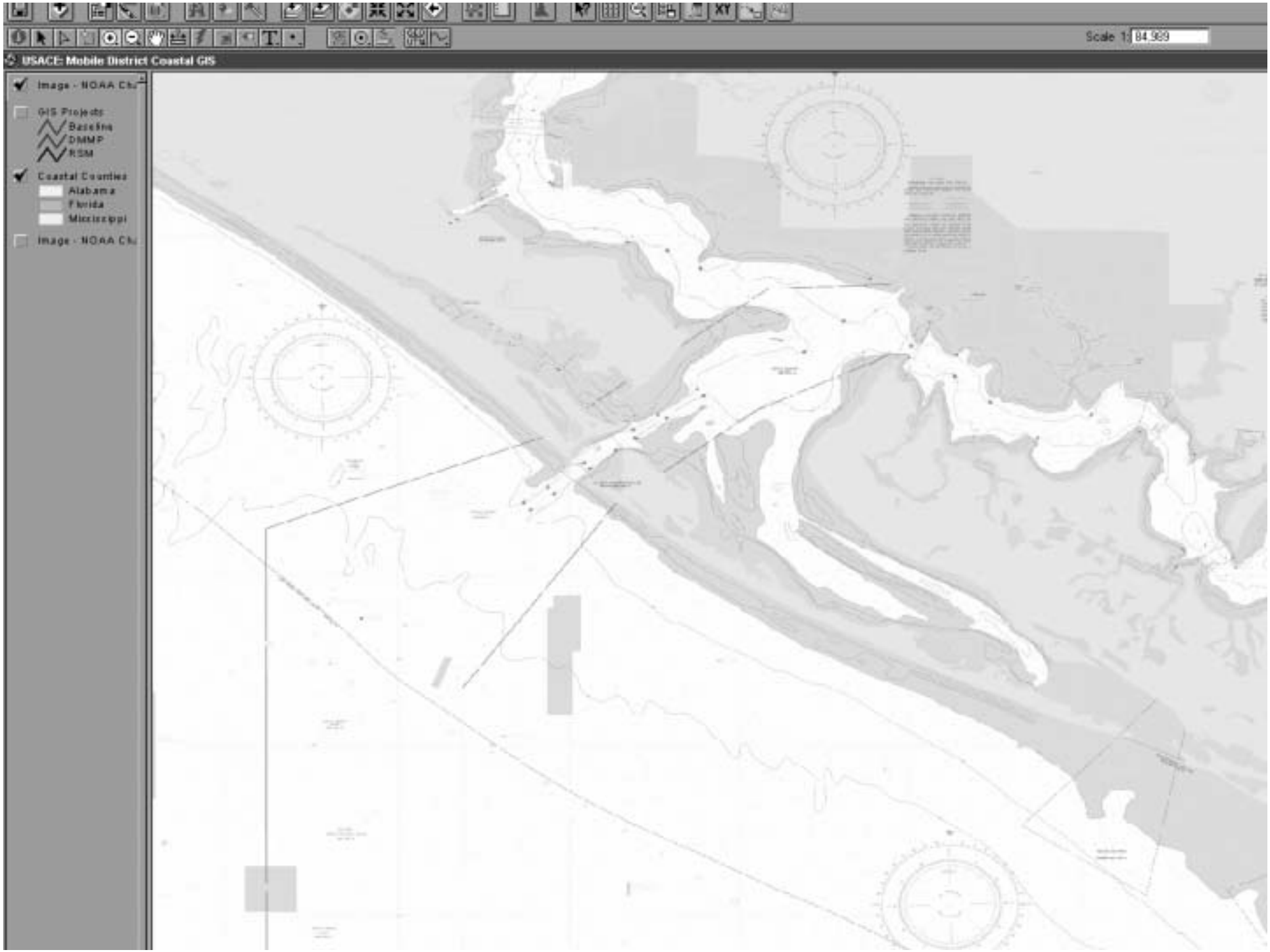
Dredging Management

Sediment Budget Analysis

Environmental

Impact Evaluation


ArcView GIS Version 3.1
File Edit View Theme SAMORJ-Toolbox Analysis Surface Graphics Window Help DMMP Menu BSM Menu
RSM Toolbar
Add Theme by Group
Data Dictionary
Historical Dredging Data
Historical Photos
Scale 1:
USACE: Mobile District Coastal GIS
GIS Projects
Coastal Counties
Alabama
Florida
Mississippi
Add Theme(s)
Theme Group:
RSM - Sub-Region 05
Category:
Imagery
Themes: (SHIFT + CLICK to select)
Image - Florida DEP Orthos 1998
Image - Panama City Color Imagery - 1999
Image - NOAA Chart - Cropped
OK
Close
Regional Sediment GIS
Add selected themes to view USACE: Mobile District Coastal GIS?
Yes
No
Sub-Region 4
Sub-Region 7
Sub-Region 3
Sub-Region 2
Sub-Region 1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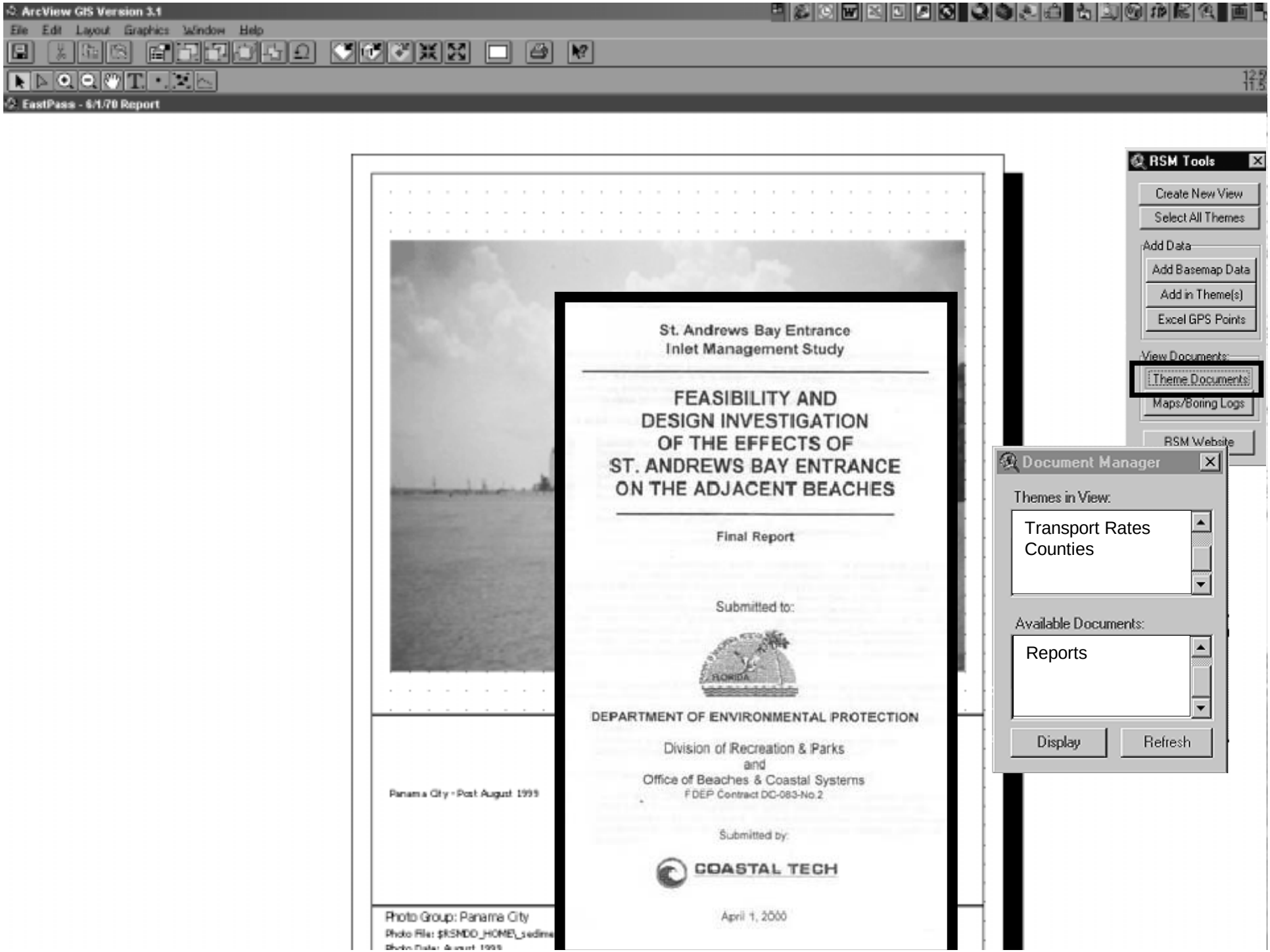
USACE: Mobile District Coastal GIS
Image - NOAA Ch
GIS Projects
Baseline
DMMP
RSM
Coastal Counties
Alabama
Florida
Mississippi
Image - NOAA Ch


ArcView GIS Version 3.1
File Edit Layout Graphics Window Help
EastPass - 6/1/70 Report
St. Andrews Bay Entrance
Inlet Management Study
FEASIBILITY AND
DESIGN INVESTIGATION
OF THE EFFECTS OF
ST. ANDREWS BAY ENTRANCE
ON THE ADJACENT BEACHES
Final Report
Submitted to:
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Recreation & Parks
and
Office of Beaches & Coastal Systems
FDEP Contract DC-083-No.2
Submitted by:
COASTAL TECH
April 1, 2000
Panama City - Post August 1995
Photo Group: Panama City
RSM Tools
Create New View
Select All Themes
Add Data
Add Basemap Data
Add in Theme(s)
Excel GPS Points
View Documents
Theme Documents
Maps/Boring Logs
RSM Website
Document Manager
Themes in View:
Transport Rates
Counties
Available Documents:
Reports
Display
Refresh

Modeling Approach

- **ADCIRC -** Water-Levels and Circulation
- **WIS -** Wave Hindcast
- **STWAVE -** Wave Transformation
- **GENESIS -** Shoreline Change/Transport
- **SMS -** Surface Modeling System

Mobile District Coastal GIS Data Dictionary

Group Name	Common Name	File Name	Theme Type	Feature Class	File Path
RSM - Regional Area	Alabama Navigation Channels	rsm_dd_al_channels.shp	shape	point	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Alabama federal navigation channels maintained by the MDO.				
RSM - Regional Area	Alabama Navigation Channels Limits	rsm_dd_al_channels_polygons.shape		polygon	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Polygon boundaries of Alabama federal navigation channels maintained by the MDO.				
RSM - Regional Area	Alabama Navigation Channels Stationing	rsm_dd_al_channels_stationing.shape		line	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Cross sections and centerlines of Alabama federal navigation channels maintained by the MDO.				
RSM - Regional Area	Cities & Towns	rsm_dd_towns.shp	shape	point	$RSMDD_HOME/_sediment_dd/feature/shape/regional/zone_04/
Description:	Cities & Towns in region.				
RSM - Regional Area	Coastal Points of Interest	rsm_dd_coastal_ins.shp	shape	point	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Coastal points of interest.				
RSM - Regional Area	COE - SAD Boundaries	rsm_dd_sad.shp	shape	polygon	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Legend for SAD boundary theme in Regional view.				
RSM - Regional Area	Congressional Districts	rsm_dd_congress.shp	shape	polygon	$RSMDD_HOME/_sediment_dd/feature/shape/regional/
Description:	Congressional Districts				
RSM - Regional Area	Cropped Quad Sheet - Bay Minette	crop_f30087e1_utm.sid	georaster	image	$RSMDD_HOME/_sediment_dd/georast/quadsheets/
Description:	30 x 60 Minute Quad Sheet - 1:100,000 - 1978 (cropped)				
RSM - Regional Area	Cropped Quad Sheet - Biloxi to Dauphin	crop_f30088a1_utm.sid	georaster	image	$RSMDD_HOME/_sediment_dd/georast/quadsheets/
Description:	30 x 60 Minute Quad Sheet - 1:100,000 - 1978 (cropped)				
RSM - Regional Area	Cropped Quad Sheet - Carabelle	crop_f29084e1_utm.sid	georaster	image	$RSMDD_HOME/_sediment_dd/georast/quadsheets/
Description:	30 x 60 Minute Quad Sheet - 1:100,000 - 1978 (cropped)				

Regional Sediment Management GIS

Dredging Management

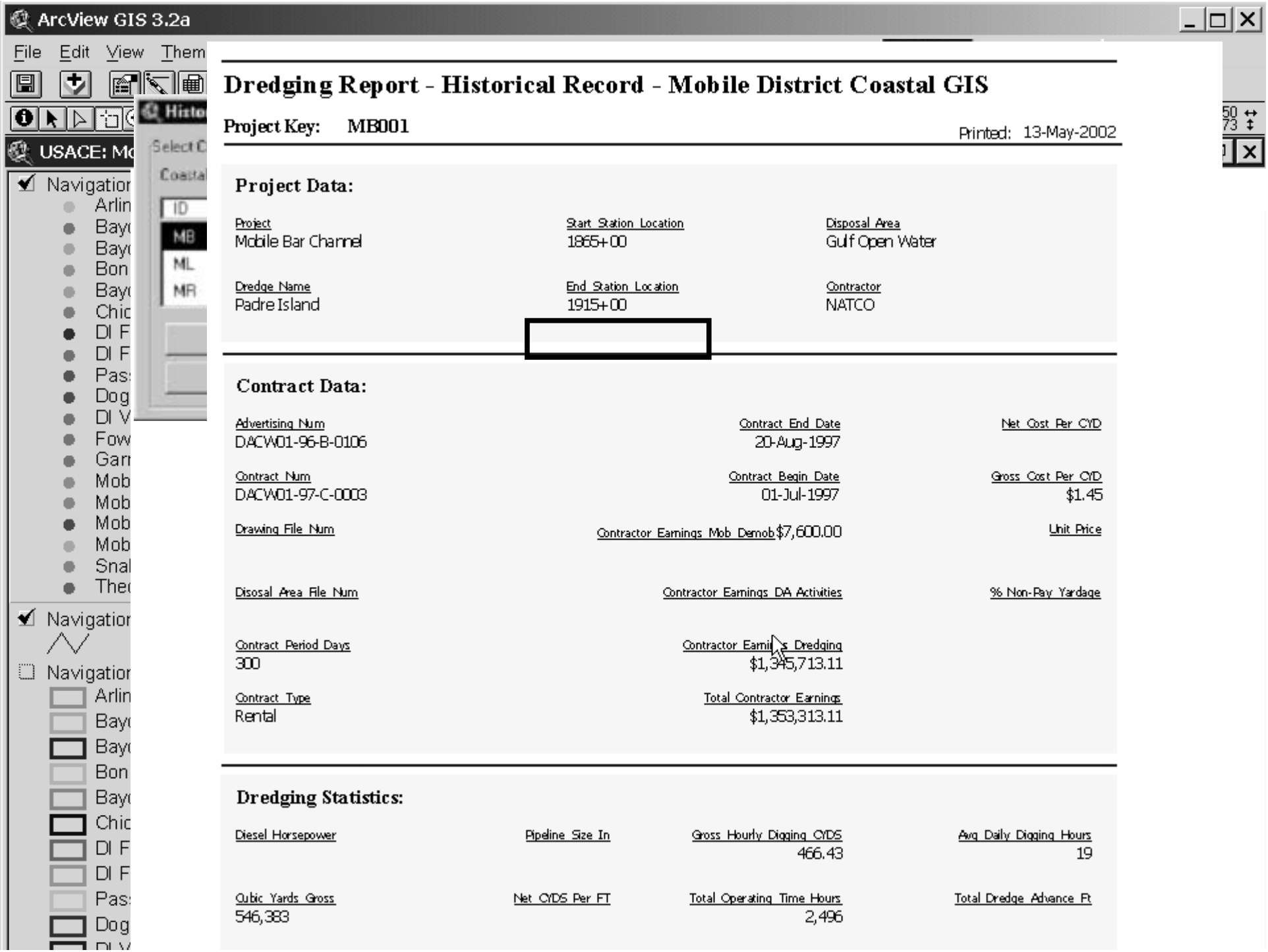
- Dredging History
- Laboratory Reports
- Placement Design

Data Management

Sediment Budget Analysis

Environmental

Impact Evaluation


ArcView GIS 3.2a
File Edit View Them
USACE: Mc
Navigation
Navigation
Navigation
Dredging Report - Historical Record - Mobile District Coastal GIS
Project Key: MB001
Printed: 13-May-2002
Project Data:
Project
Mobile Bar Channel
Start Station Location
1865+00
Disposal Area
Gulf Open Water
Dredge Name
Padre Island
End Station Location
1915+00
Contractor
NATCO
Contract Data:
Advertising Num
DACW01-96-B-0106
Contract End Date
20-Aug-1997
Net Cost Per CYD
Contract Num
DACW01-97-C-0003
Contract Begin Date
01-Jul-1997
Gross Cost Per CYD
$1.45
Drawing File Num
Contractor Earnings Mob Demob
$7,600.00
Unit Price
Disosal Area File Num
Contractor Earnings DA Activities
% Non-Pay Yardage
Contract Period Days
300
Contractor Earnings Dredging
$1,345,713.11
Contract Type
Rental
Total Contractor Earnings
$1,353,313.11
Dredging Statistics:
Diesel Horsepower
Pipeline Size In
Gross Hourly Digging CYDS
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Avg Daily Digging Hours
19
Cubic Yards Gross
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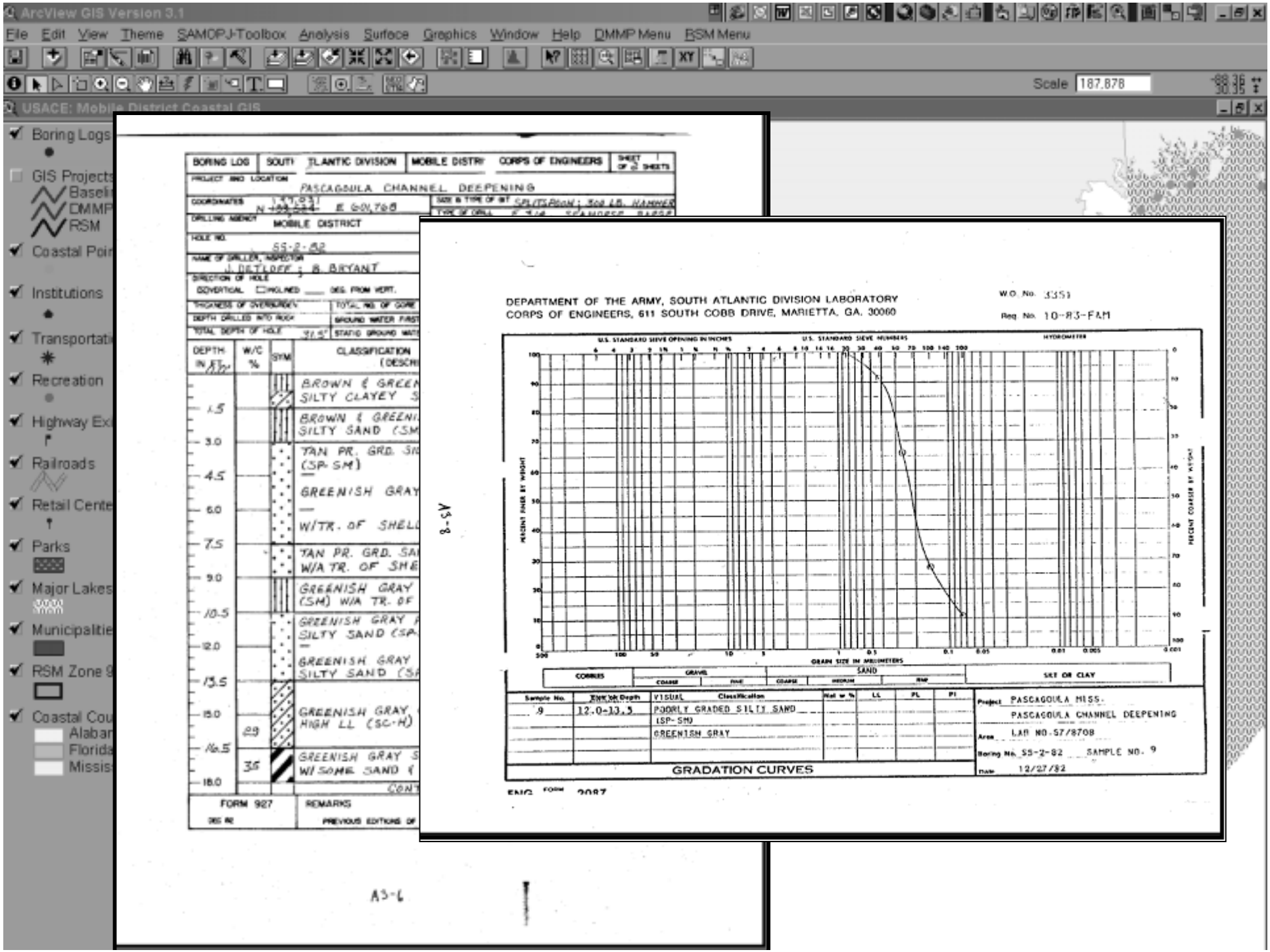
Net CYDS Per FT
Total Operating Time Hours
2,496
Total Dredge Advance Ft


ArcView GIS Version 3.1
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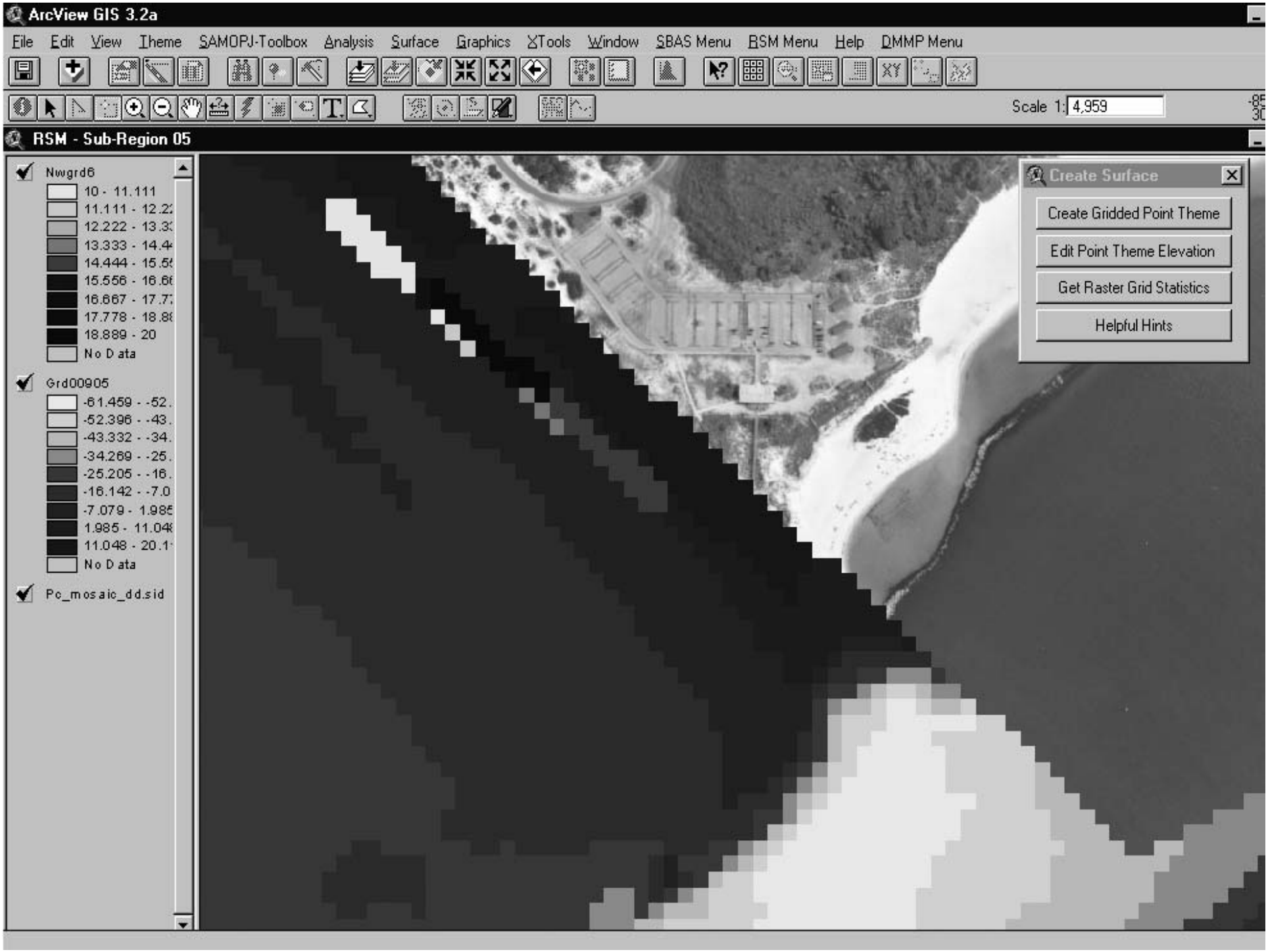
USACE: Mobile District Coastal GIS
Boring Logs
GIS Projects
Baseli
DMMP
RSM
Coastal Poi
Institutions
Transportati
Recreation
Highway Ex
Railroads
Retail Cente
Parks
Major Lakes
Municipalitie
RSM Zone 9
Coastal Cou
Alaba
Florida
Missis
BORING LOG
SOUTH ATLANTIC DIVISION
MOBILE DISTRICT
CORPS OF ENGINEERS
PROJECT AND LOCATION
PASCAGOULA CHANNEL DEEPENING
DRILLING AGENCY
MOBILE DISTRICT
HOLE NO.
SS-2-82
NAME OF DRILLER, INSPECTOR
J. DETLOFF ; B. BRYANT
DIRECTION OF HOLE
VERTICAL
DEPTH DRILLED INTO ROCK
TOTAL DEPTH OF HOLE
DEPTH IN FT.
W/C %
SYM.
CLASSIFICATION (DESCRI
BROWN & GREEN
SILTY CLAYEY
BROWN & GREENI
SILTY SAND (SM
TAN PR. GRD.
(SP-SM)
GREENISH GRAY
W/TR. OF SHELL
TAN PR. GRD. SA
W/A TR. OF SHE
GREENISH GRAY
(SM) W/A TR. OF
GREENISH GRAY
SILTY SAND (SP
GREENISH GRAY
SILTY SAND (SM
GREENISH GRAY
HIGH LL (SC-H)
GREENISH GRAY
W/SOME SAND
CONT
FORM 927
REMARKS
PREVIOUS EDITIONS OF
A3-6
A3-8
DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30060
W.O. No. 3351
Req. No. 10-83-FAM
U.S. STANDARD SIEVE OPENING IN INCHES
U.S. STANDARD SIEVE NUMBERS
HYDROMETER
PERCENT FINER BY WEIGHT
PERCENT COARSER BY WEIGHT
GRAIN SIZE IN MILLIMETERS
COBBLES
GRAVEL
COARSE
FINE
SAND
COARSE
MEDIUM
FINE
SILT OR CLAY
Sample No.
Depth
VISUAL Classification
Nat w %
LL
PL
PI
9
12.0-13.5
POORLY GRADED SILTY SAND
(SP-SM)
GREENISH GRAY
GRADATION CURVES
Project PASCAGOULA MISS.
PASCAGOULA CHANNEL DEEPENING
Area LAB NO. 57/8708
Boring No. SS-2-82
SAMPLE NO. 9
Date 12/27/82
ENG. FORM 2087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RSM - Sub-Region 05
Nwgrd6
10 - 11.111
11.111 - 12.2
12.222 - 13.3
13.333 - 14.4
14.444 - 15.5
15.556 - 16.6
16.667 - 17.7
17.778 - 18.8
18.889 - 20
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Grd00905
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-52.396 - -43.
-43.332 - -34.
-34.269 - -25.
-25.205 - -16.
-16.142 - -7.0
-7.079 - 1.985
1.985 - 11.048
11.048 - 20.1
No Data
Pc_mosaic_dd.sid
Create Surface
Create Gridded Point Theme
Edit Point Theme Elevation
Get Raster Grid Statistics
Helpful Hints

Regional Sediment Management GIS

Data Management

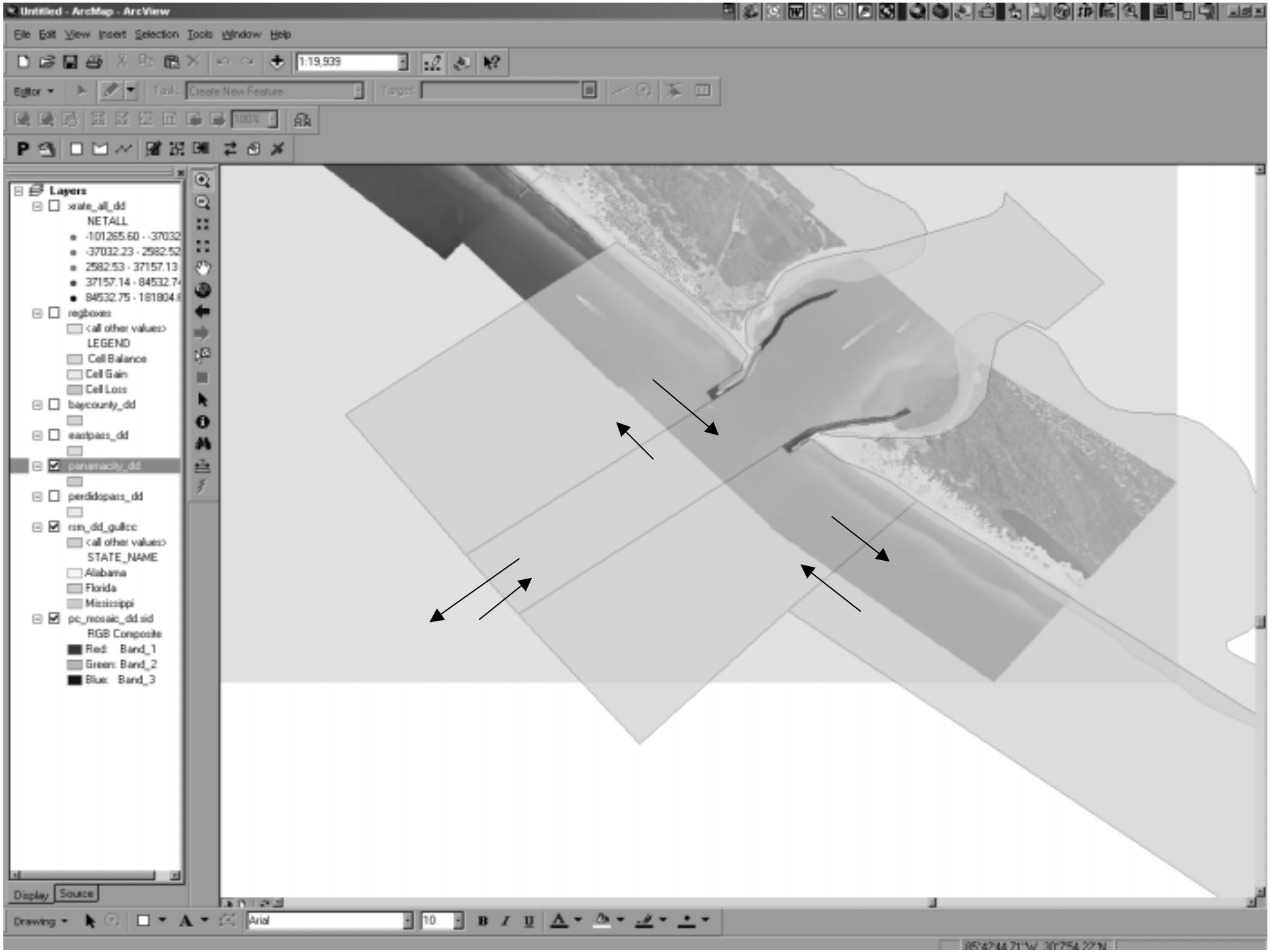
Dredge Management

Environmental

Impact Evaluation

Sediment Budget Analysis

- Create
- Compute
- Visualize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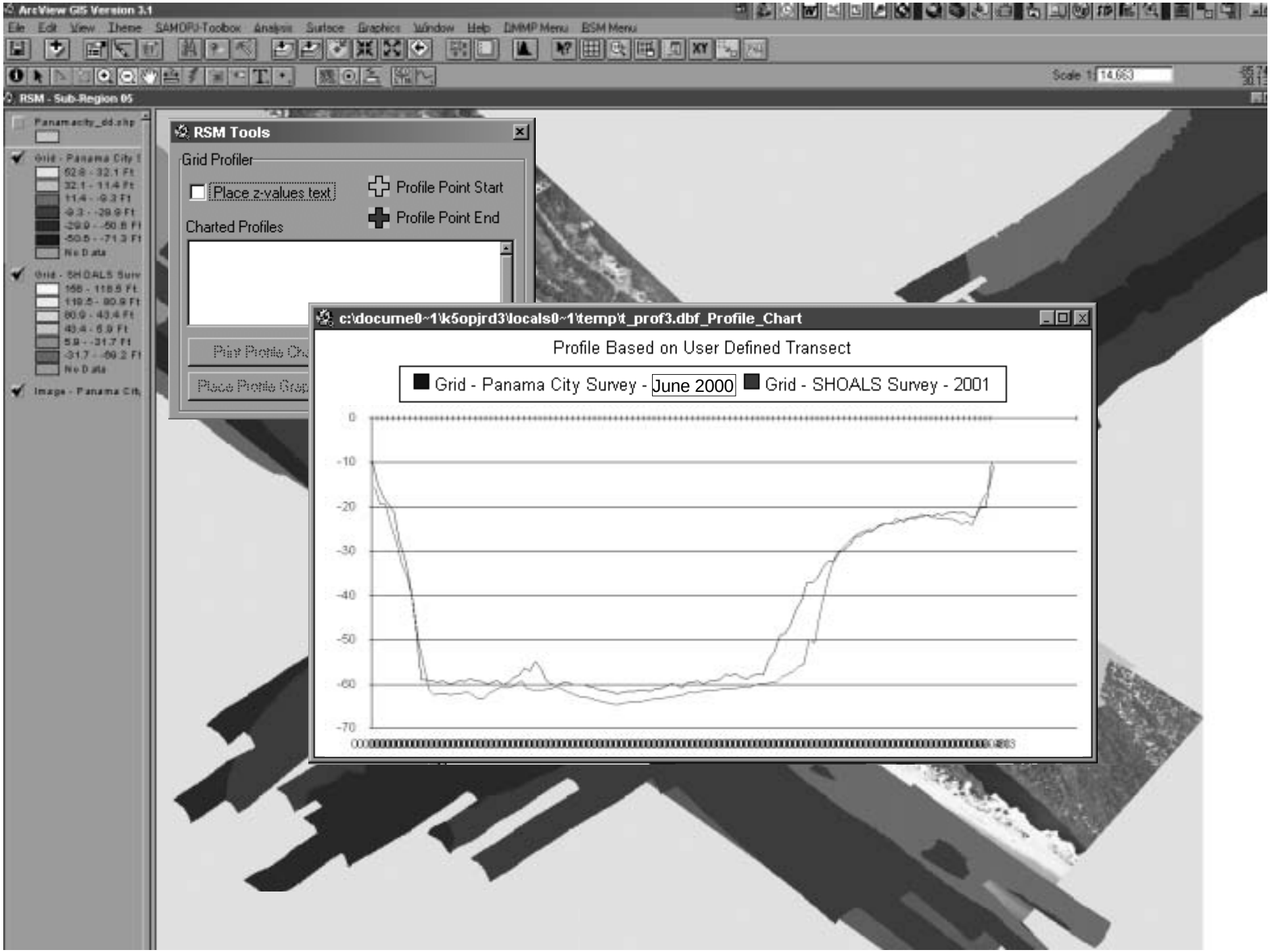
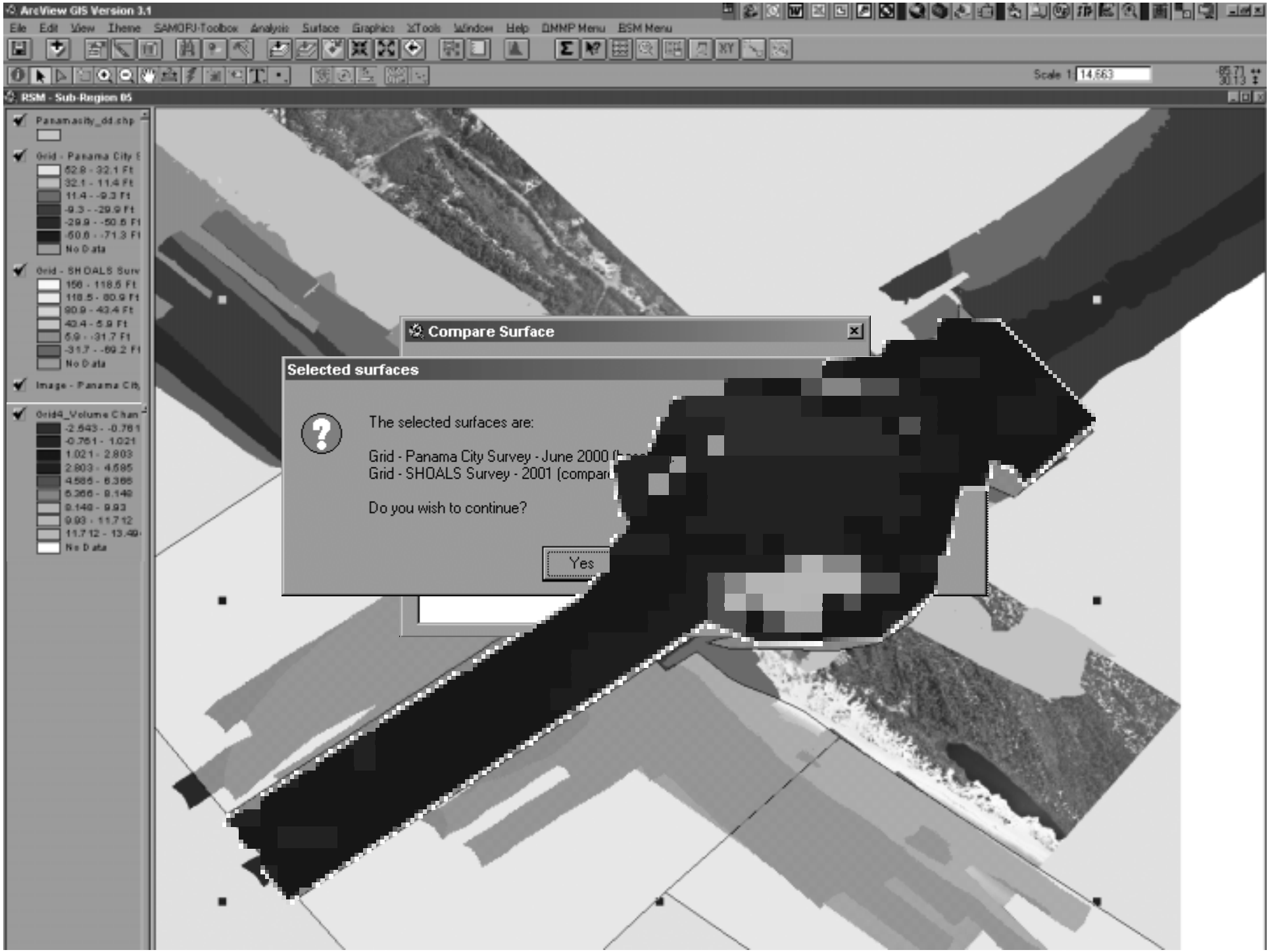
Editor
Task: Create New Feature
Target:
Layers
xrate_all_dd
NETALL
-101265.60 - -37032
-37032.23 - 2582.52
2582.53 - 37157.13
37157.14 - 84532.74
84532.75 - 181804.6
regboxes
<all other values>
LEGEND
Cell Balance
Cell Gain
Cell Loss
baycounty_dd
eastpass_dd
panamacity_dd
perdidopass_dd
nsn_dd_gulfcc
<all other values>
STATE_NAME
Alabama
Florida
Mississippi
pc_mosaic_dd.sid
RGB Composite
Red: Band_1
Green: Band_2
Blue: Band_3
Display
Source
Drawing
Arial
10


ArcView GIS Version 3.1
RSM - Sub-Region 05
RSM Tools
Grid Profiler
Place z-values text
Profile Point Start
Profile Point End
Charted Profiles
c:\docume0~1\k5opjrd3\locals0~1\temp\t_prof3.dbf_Profile_Chart
Profile Based on User Defined Transect
Grid - Panama City Survey - June 2000
Grid - SHOALS Survey - 2001
0
-10
-20
-30
-40
-50
-60
-70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Scale 1: 14,563
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Panamacity_dd.shp
Grid - Panama City
52.8 - 32.1 Ft
32.1 - 11.4 Ft
11.4 - -9.3 Ft
-9.3 - -29.9 Ft
-29.9 - -50.6 Ft
-50.6 - -71.3 Ft
No Data
Grid - SHOALS Surv
156 - 118.5 Ft
118.5 - 80.9 Ft
80.9 - 43.4 Ft
43.4 - 5.9 Ft
5.9 - -31.7 Ft
-31.7 - -69.2 Ft
No Data
Image - Panama Cit
Grid4_Volume Chan
-2.543 - -0.761
-0.761 - 1.021
1.021 - 2.803
2.803 - 4.585
4.585 - 6.366
6.366 - 8.148
8.148 - 9.93
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Compare Surface
Selected surfaces
The selected surfaces are:
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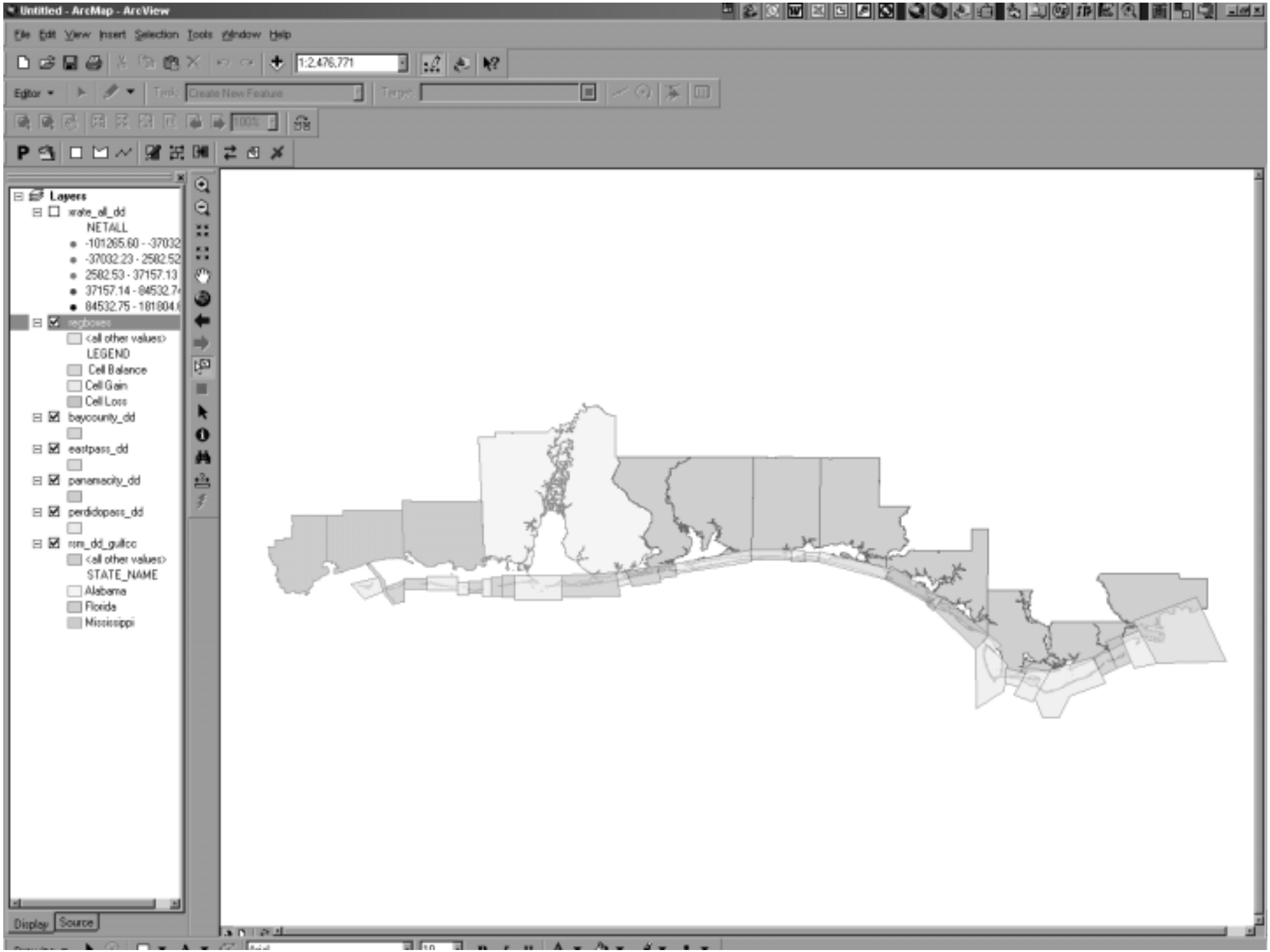
Grid - SHOALS Survey - 2001 (compar
Do you wish to continue?
Yes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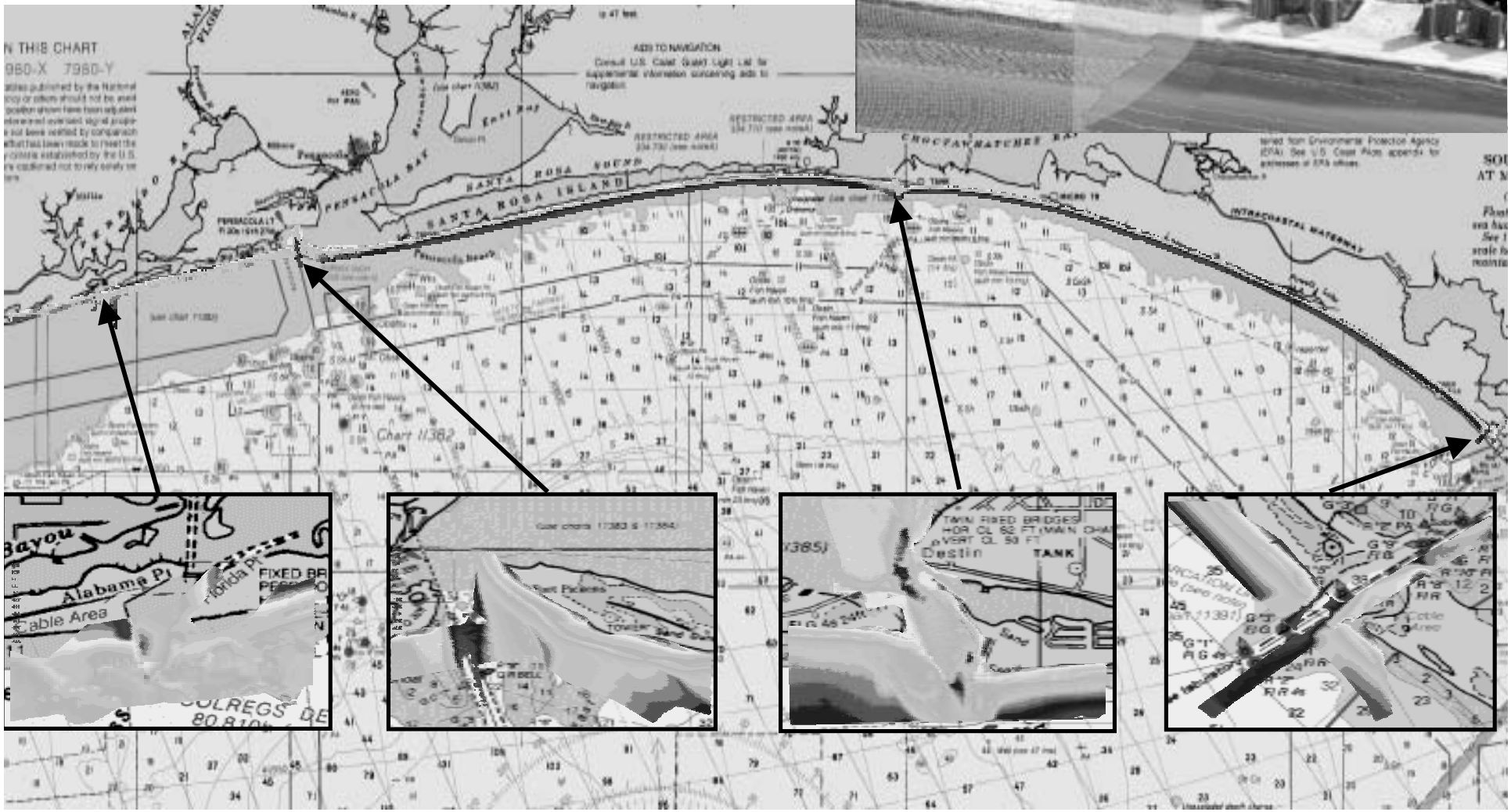
Create New Feature
Layers
xrafe_all_dd
NETALL
-101265.60 - -37032
-37032.23 - 2582.52
2582.53 - 37157.13
37157.14 - 84532.74
84532.75 - 181604.6
segbases
<all other values>
LEGEND
Cell Balance
Cell Gain
Cell Loss
baycounty_dd
eastpass_dd
panamacity_dd
perdidopass_dd
nrs_dd_gulfcc
<all other values>
STATE_NAME
Alabama
Florida
Mississippi
Display
Source

CHCMS


Topographic lidar data
Hydrographic lidar data
Digital imagery
FROM A SINGLE PLATFORM


AIDS TO NAVIGATION
RESTRICTED AREA
PENSACOLA BAY
SANTA ROSA SOUND
SANTA ROSA ISLAND
INTRACOASTAL WATERWAY
Pensacola Beach
Chart 11382
Bayou
Alabama Pt
FIXED BR
able Area
COLREGS DE
Gulf charts 11383 & 11384
Fort Pickens
TWIN FIXED BRIDGES
HOR CL 62 FT (MAIN CHA
VERT CL 50 FT
Destin
TANK

Regional Sediment Management GIS

Data Management

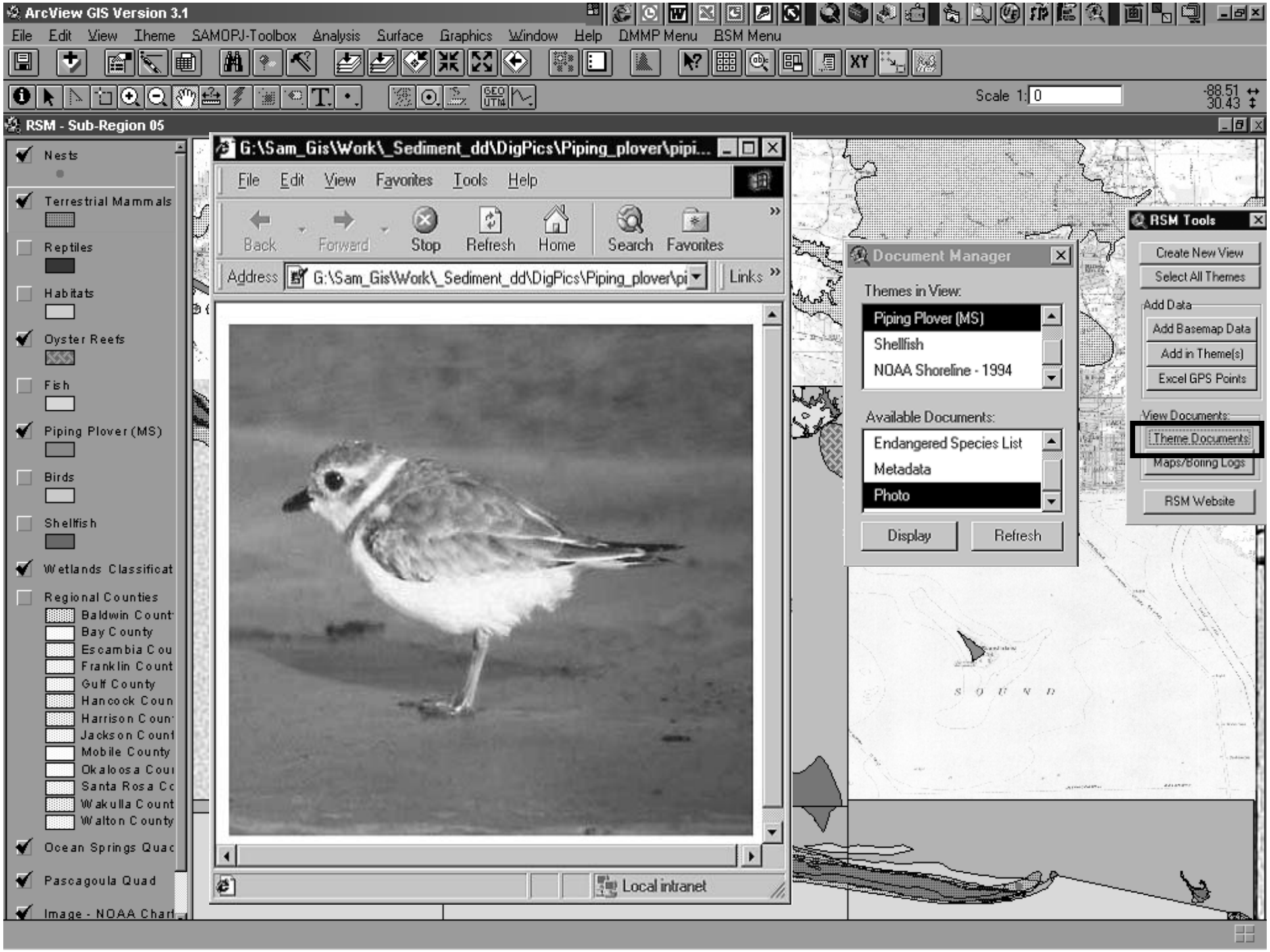
Dredge Management

Sediment Budget Analysis

Impact Evaluation

Environmental

- Inventory
- Change Analysis
- Permitting
- Water Quality


ArcView GIS Version 3.1
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30.43
RSM - Sub-Region 05
Nests
Terrestrial Mammals
Reptiles
Habitats
Oyster Reefs
Fish
Piping Plover (MS)
Birds
Shellfish
Wetlands Classificat
Regional Counties
Baldwin Count
Bay County
Escambia Cou
Franklin Count
Gulf County
Hancock Coun
Harrison Coun
Jackson Count
Mobile County
Okaloosa Cou
Santa Rosa Co
Wakulla Count
Walton County
Ocean Springs Quac
Pascagoula Quad
Image - NOAA Chart
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File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites
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Links
Local intranet
Document Manager
Themes in View:
Piping Plover (MS)
Shellfish
NOAA Shoreline - 1994
Available Documents:
Endangered Species List
Metadata
Photo
Display
Refresh
RSM Tools
Create New View
Select All Themes
Add Data
Add Basemap Data
Add in Theme(s)
Excel GPS Points
View Documents:
Theme Documents
Maps/Boring Logs
RSM Website
SOUND

Regional Sediment Management GIS

Data Management

Dredge Management

Sediment Budget Analysis

Environmental

Impact Evaluation

- DMMP
- Shore Protection
- Navigation

Partnering

- Leveraging – DMS, HyPAS, SHOALS Toolbox, DMSMART, others
- RSM GIS Technical Working Group
- Internet Map Server (IMS)

Regional Sediment Management Homepage - Microsoft Internet Explorer - [Workin

File Edit View Favorites Tools Help

Back Search Favorites History

Address http://gis.sam.usace.army.mil/Projects/RSM/index.htm

Links Hotmail Windows ESRI Support ArcObjects Online Google DynTel GIS Home Dyntel Travel WoWN USACE Online Conversion

Northern Gulf of Mexico Regional Sediment Management Program Demonstration Website

US Army Corps of Engineers

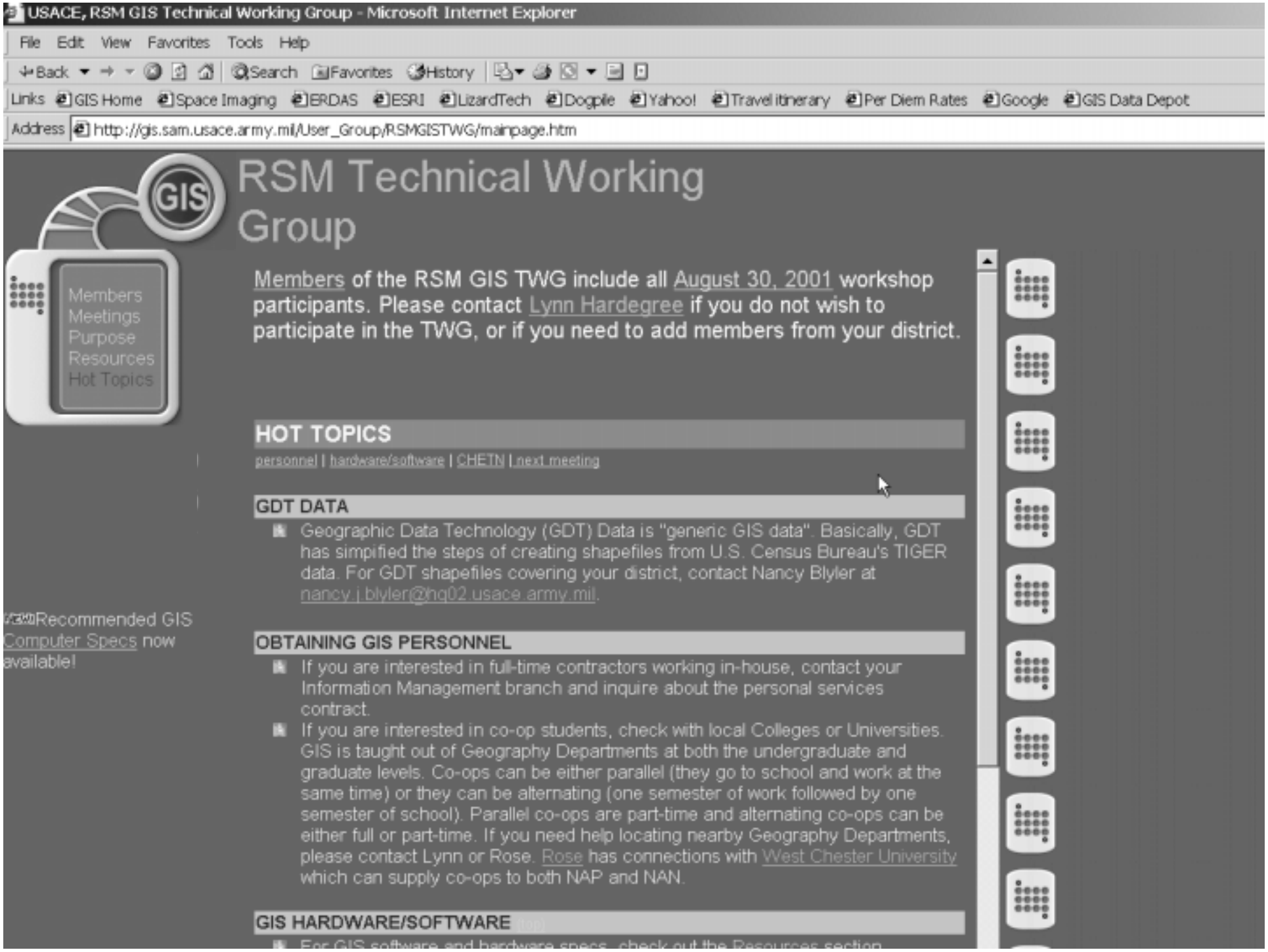
MOBILE DISTRICT

- Activites
- Coastal Terms
- Meeting Info
- Program Info
- Members
- Participants
- Project Maps
- TWG
- Sub-Committees
- Sub-Regions
- Contact Us

In the past, the US Army Corps of Engineers (USACE) has focused on managing sand at coastal projects on a project-by-project basis. This approach to sand management may not adequately consider the impact of individual projects on down drift projects. To address this issue, the USACE has initiated efforts to assess the benefits of managing sediment resources as a regional scale resource rather than a localized project resource. The concept of Regional Sediment Management (RSM) is a result of the 67th meeting of the Coastal Engineering Research Board (CERB) held in May 1998. (more)

Done

Internet


USACE, RSM GIS Technical Working Group - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites History
Links GIS Home Space Imaging ERDAS ESRI LizardTech Dogpile Yahoo! Travel Itinerary Per Diem Rates Google GIS Data Depot
Address http://gis.sam.usace.army.mil/User_Group/RSMGISTWG/mainpage.htm
RSM Technical Working Group
Members
Meetings
Purpose
Resources
Hot Topics
Members of the RSM GIS TWG include all August 30, 2001 workshop participants. Please contact Lynn Hardegree if you do not wish to participate in the TWG, or if you need to add members from your district.
HOT TOPICS
personnel | hardware/software | CHETN | next meeting
GDT DATA
Geographic Data Technology (GDT) Data is "generic GIS data". Basically, GDT has simpified the steps of creating shapefiles from U.S. Census Bureau's TIGER data. For GDT shapefiles covering your district, contact Nancy Blyler at nancy.j.blyler@hq02.usace.army.mil.
Recommended GIS Computer Specs now available!
OBTAINING GIS PERSONNEL
If you are interested in full-time contractors working in-house, contact your Information Management branch and inquire about the personal services contract.
If you are interested in co-op students, check with local Colleges or Universities. GIS is taught out of Geography Departments at both the undergraduate and graduate levels. Co-ops can be either parallel (they go to school and work at the same time) or they can be alternating (one semester of work followed by one semester of school). Parallel co-ops are part-time and alternating co-ops can be either full or part-time. If you need help locating nearby Geography Departments, please contact Lynn or Rose. Rose has connections with West Chester University which can supply co-ops to both NAP and NAN.
GIS HARDWARE/SOFTWARE

Address https://opjgis.sam.usace.army.mil/

Spatial Data Branch online

US Army Corps of Engineers, Mobile District

Home | Map Room | Data | Services | Projects | User Groups

What's New

- Award Winning IMS Site
- Metadata Server
- GIS Support Site

GIS Information

- What is GIS?
- What We Do
- GIS Presentations

OP-J-GIS News

- ESRI Conference
- Meeting Jack Dangermond
- CADD/GIS Conference

"As a young man, my fondest dream was to become a geographer. However, while working in the customs office I thought deeply about the matter and concluded that it was far too difficult a subject. With some reluctance, I then turned to physics as a substitute."
~Albert Einstein

The Spatial Data Branch, Operations Division, Mobile District is composed of engineers, physical scientists, GIS and remote sensing specialists, hydrographers, and CADD technicians that provide a broad, integrated, team-oriented capability for spatial data collection, processing, analysis and GIS/IMS development.

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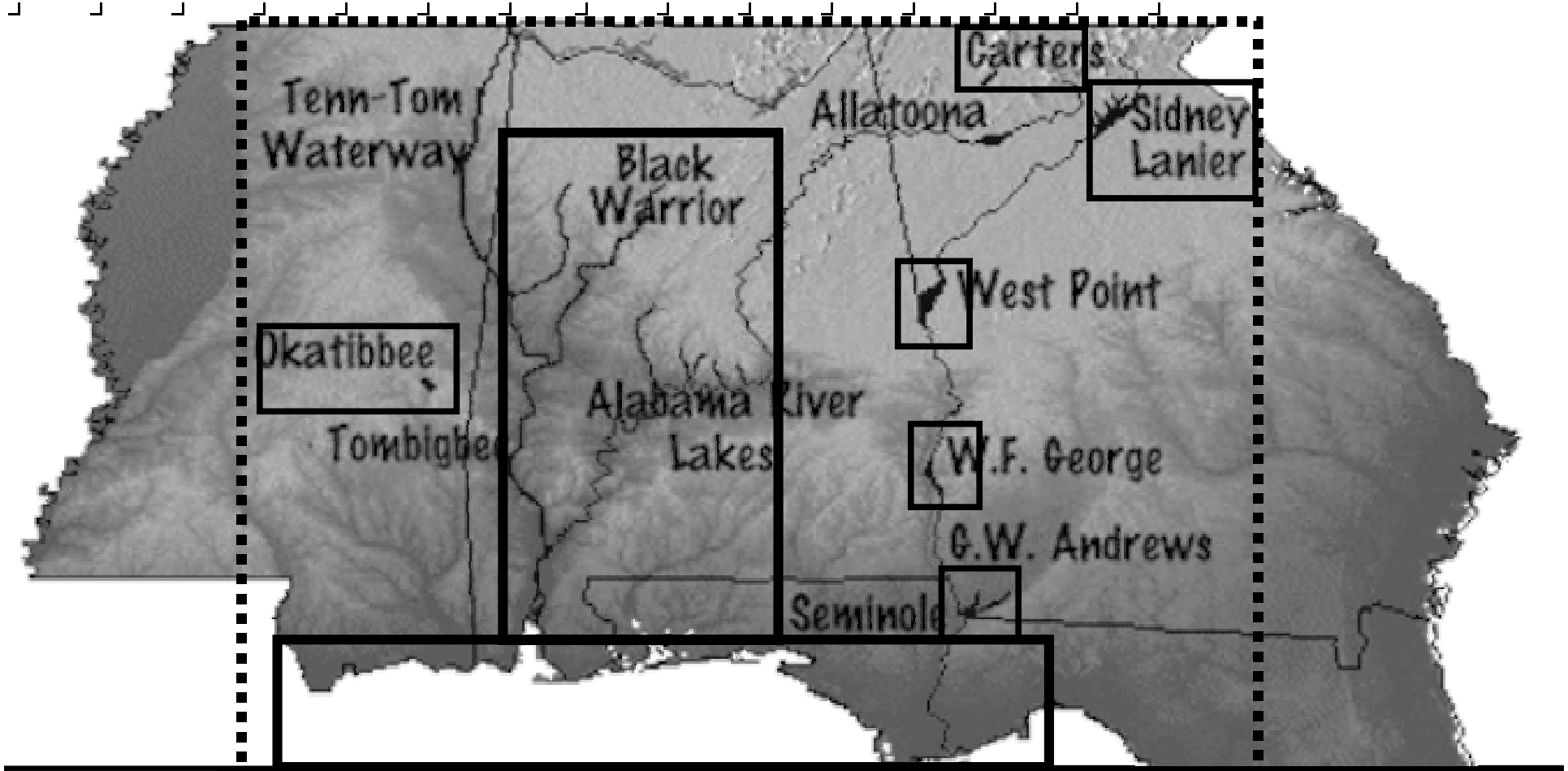
Regional Sediment Management: Sub-Region 7 GIS Viewer - Microsoft Internet Explorer
File Edit View Favorites Tools Help
USACE, Regional Sediment Management: Sub-Region 7
home
project info
help
map room
Available Tools
Zoom to Scale
Named Coastal Features:
Avalon Point
Basin Island
Bass Hole Cove
Bay Channel
Bay Point
Bayou Chico
Legal Disclaimer
Regional Sediment Management: Sub-Region 7 GIS
Destin
MORENO POINT
Layer Propert
Refresh
Visible
Active
Label
Width of map: 15134 FEET
Map datum: UTM Feet, NAD83, Zone 16
Query/Selection Results - Microsoft Internet Explorer
Bathymetry 01007 - Nov 1995
Rec
EASTING
NORTHING
ELEVATION
1 1794028.18000 11027115.84000 -9.00000
2 1794023.73000 11027161.01000 -9.40000
3 1794033.40000 11027111.66000 -8.60000
Identify

CESAM's Enterprise GIS



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Visit the Spatial Data Branch Online

- http://gis.sam.usace.army.mil

RSM Implementation Factors

Goal: maximize beneficial use of sediments, minimize environmental impacts, optimize expenditures

Technology + Data + Tools + Management = Implementation

Must integrate into management practice